

WHAT IS CLAIMED IS:

1. A magnetoresistive film in which at least a first magnetic layer, a second magnetic layer, a nonmagnetic layer, a third magnetic layer, and a fourth magnetic layer are stacked in the order named,

wherein at least said first magnetic layer comprises Gd and said fourth magnetic layer comprises Tb and/or Dy,

wherein each of said first magnetic layer and fourth magnetic layer has an easy axis of magnetization along a perpendicular direction to a film plane, and the second magnetic layer and the third magnetic layer have a greater spin polarization than the first magnetic layer and the fourth magnetic layer, and

wherein said second and third magnetic layers are magnetic layers comprising at least Co and Co contents thereof are not less than 20 at.% nor more than 90 at.%.

2. The magnetoresistive film according to Claim 1, wherein the Co contents of said second and third magnetic layers are not less than 30 at.% nor more than 50 at.%.

3. The magnetoresistive film according to Claim 1, wherein said first magnetic layer and second magnetic layer are exchange-coupled with each other and

said third magnetic layer and said fourth magnetic layer are exchange-coupled with each other, and wherein magnetization of the second magnetic layer and magnetization of the third magnetic layer are oriented  
5 in the perpendicular direction by exchange coupling force from the first magnetic layer and from the fourth magnetic layer.

10 4. The magnetoresistive film according to Claim 1, wherein thicknesses of said second magnetic layer and third magnetic layer are not less than 0.2 nm.

15 5. The magnetoresistive film according to Claim 4, wherein the thicknesses of said second magnetic layer and third magnetic layer are not less than 0.5 nm nor more than 1.5 nm.

20 6. The magnetoresistive film according to Claim 1, wherein said first magnetic layer and said fourth magnetic layer are alloy films of rare earth metal and transition metal.

25 7. The magnetoresistive film according to Claim 1, wherein said nonmagnetic layer is comprised of an insulating film.

8. The magnetoresistive film according to Claim

7, wherein said nonmagnetic layer is comprised of an oxide.

9. The magnetoresistive film according to Claim  
5 1, wherein said second and third magnetic layers  
comprise Fe.

10. A magnetic memory comprising:

a substrate;

10 a magnetoresistive film formed on the substrate,  
which comprises a first magnetic film, a second  
magnetic film, a nonmagnetic layer, a third magnetic  
film, and a fourth magnetic film, wherein said second  
magnetic film and third magnetic film comprise at least  
15 Co and a magnetoresistance ratio of said  
magnetoresistive film is not less than 10%;

a write line for reversing magnetization in the  
magnetic films of the magnetoresistive film; and

a bit line provided on the opposite side to said  
20 substrate with respect to the magnetoresistive film.

11. The magnetic memory according to Claim 10,  
wherein contents of said Co are not less than 20 at.%  
nor more than 90 at.%.